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Review Paper on Microcontroller Based Object Sorting

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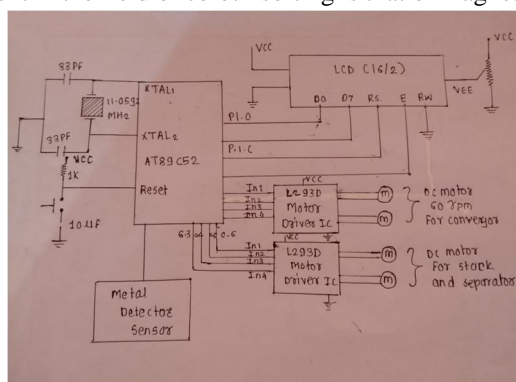
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Abstract: *Sorting of products is a very difficult industrial process. Continuous manual sorting creates consistency issues. This paper describes a working prototype designed for automatic sorting of objects based on the metal detector KY-036 sensor was used to detect the colour of the product and the PIC16F628A microcontroller was used to control the overall process. The identification of the colour is based on the frequency analysis of the output of TCS230 sensor. One conveyor belts were used, it controlled by separate DC motors. The belt is for placing the product to be analysed by the colour sensor, having separated compartments, in order to separate the products. The experimental results promise that the prototype will fulfil the needs for higher production and precise quality in the field of automation.*

Keywords: *colour sorting, Conveyor belt, DC motor, PIC 16F628A, TCS230 magnetic detector*

I. INTRODUCTION

Machines can perform highly repetitive tasks better than humans. Worker fatigue on assembly lines can result in reduced performance, and cause challenges in maintaining product quality. An employee who has been performing an inspection task over and over again may eventually fail to recognize the colour of product. Automating many of the tasks in the industries may help to improve the efficiency of manufacturing system. The purpose of this model is to design and implement a system which automatically separates products based on their colour. This machine consists of three parts: conveyor belt, magnetic detector, and dc motor. The output and input of these parts was interfaced using PIC microcontroller. To reduce human efforts on mechanical manoeuvring different types of sorting machines are being developed. These machines are too costly due to the complexity in the fabrication process. A common requirement in the field of colour sorting is that of magnetic detector and identification.



II. LITERATURE REVIEW

Metal detector is a device which response to metal that may not be readily apparent. The simplest form of a metal detector consist of an oscillators producing an altering current that passes through a coil producing and alternating magnetic field. If a piece of electrically conduct metal is close to the coil, eddy currents will be induced in the metal, and this produces altering magnetic field its own. If another coil used to measure the magnetic field(acting as a magneto meter), the change in the magnetic field due to the metallic object can be detected.

A gold metal detector for example is designed to locate gold underground there are many types of metal detector with varying degree's of refinement and complexity but they are operate on the same basic principle.



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